CLAIMS

What is claimed is:

1. A radio frequency (RF) circuit comprises:

a first differential RF path having at least one RF block, wherein the at least one RF block of the first differential RF path includes a first differential section and a second differential section, wherein the first differential section of the at least one RF block of the first differential RF path is symmetrical with the second differential section of the at least one RF block of the first differential RF path; and

a second differential RF path having at least one RF block, wherein the at least one RF block of the second differential RF path includes a first differential section and a second differential section, wherein the first differential section of the at least one RF block of the second differential RF path is symmetrical with the second differential section of the at least one RF block of the second differential RF path,

wherein the first and second half differential sections of the at least one RF block of the first differential RF path are symmetrically placed on at least one layer around the first and second half differential sections of the at least one RF block of the second differential RF path, wherein the first and second half differential sections of the at least one RF block of the second differential RF path are fabricated on the at least one layer.

2. The RF circuit of claim 1 further comprises:

a transformer operably coupled to convert differential signals from the first differential RF path into single-ended signals and to convert differential signals from the second differential RF path into single-ended signals.

3. The RF circuit of claim 1, wherein symmetry of the first and second differential sections of the first and second differential RF paths further comprises at least one of: an electrical symmetry and a physical symmetry.

4. The RF circuit of claim 1, wherein the at least one layer further comprises at least one of:

at least one metal layer of an integrated circuit; and

at least one trace layer of a printed circuit board.

5. The RF circuit of claim 1 further comprises:

matching circuit operably coupled to provide an impedance match between the first RF path and an antenna and to provide an impedance match between the second RF path and the antenna.

6. The RF circuit of claim 1 further comprises:

the at least one RF block of the first RF path includes a transmit filter module, a transmit mixing module, and a power amplifier interoperably coupled to convert outbound low intermediate frequency data into outbound differential RF signals; and

the at least one RF block of the second RF path includes a low noise amplifier, a receive mixing module, and a receive filter module interoperably coupled to convert inbound differential RF signals into inbound low intermediate frequency signals.

7. The RF circuit of claim 6 further comprises:

the transmit filter module including a first transmit filter section and a second transmit filter section;

the transmit mixing module including a first transmit mixing section and a second transmit mixing section;

the power amplifier including a first power amplifier section and a second power amplifier section;

the low noise amplifier including a first low noise amplifier section and a second low noise amplifier section;

the receive mixing module including a first receive mixing section and a second receive mixing section; and

the receive filter module including a first receive filter section and a second receive filter section.

8. A data circuit comprises:

a first differential data path having at least one data block, wherein the at least one data block of the first differential path includes a first differential section and a second differential section, wherein the first differential section of the at least one data block of the first differential data path is symmetrical with the second differential section of the at least one data block of the first differential data path; and

a second differential data path having at least one data block, wherein the at least one data block of the second differential data path includes a first differential section and a second differential section, wherein the first differential section of the at least one data block of the second differential data path is symmetrical with the second differential section of the at least one data block of the second differential data path,

wherein the first and second half differential sections of the at least one data block of the first differential data path are symmetrically placed on at least one layer around the first and second half differential sections of the at least one data block of the second differential data path, wherein the first and second half differential sections of the at least one data block of the second differential data path are fabricated on the at least one layer.

9. The data circuit of claim 8 further comprises:

a splitter operably coupled to split first differential signals of the first differential data path from second differential signals of the second differential data path.

10. The data circuit of claim 8, wherein symmetry of the first and second differential sections of the first and second differential data paths further comprises at least one of: an electrical symmetry and a physical symmetry.

11. The data circuit of claim 8, wherein the at least one layer further comprises at least one of:

at least one metal layer of an integrated circuit; and

at least one trace layer of a printed circuit board.

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12. A radio frequency integrated circuit comprises:

a receiver section including a low noise amplifier, receiver mixing module, and receiver filtering module interoperably coupled to convert inbound radio frequency (RF) signals into inbound low intermediate frequency (IF) signals;

a transmitter section including a transmitter filtering module, a transmitter mixing module, and a power amplifier interoperably coupled to convert outbound low IF signals into outbound RF signals; and

a transformer balun operably coupled to the low noise amplifier and to the power amplifier, wherein the low noise amplifier includes a first differential section and a second differential section, wherein the first differential section of the low noise amplifier is symmetrical with the second differential section of the low noise amplifier,

wherein the power amplifier includes a first differential section and a second differential section, wherein the first differential section of the power amplifier is symmetrical with the second differential section of the power amplifier,

wherein the first and second differential sections of the low noise amplifier are symmetrically placed on at least one layer around the first and second half differential sections of the power amplifier for coupling the low noise amplifier and the power amplifier to the transformer balun, wherein the first and second half differential sections of the power amplifier are fabricated on the at least one layer.

13. The radio frequency integrated circuit of claim 12 further comprises:

the receiver mixing module includes a first differential section and a second differential section, wherein the first differential section of the receiver mixing module is symmetrical with the second differential section of the receiver mixing module,

wherein the transmitter mixing module includes a first differential section and a second differential section, wherein the first differential section of the transmitter mixing module is symmetrical with the second differential section of the transmitter mixing module,

wherein the first and second half differential sections of the receiver mixing module are symmetrically placed on the at least one layer around the first and second half differential sections of the transmitter mixing module, wherein the first and second half differential sections of the transmitter mixing module are fabricated on the at least one layer.

14. The radio frequency integrated circuit of claim 12 further comprises:

the receiver filtering module includes a first differential section and a second differential section, wherein the first differential section of the receiver filtering module is symmetrical with the second differential section of the receiver filtering module,

wherein the transmitter filtering module includes a first differential section and a second differential section, wherein the first differential section of the transmitter filtering module is symmetrical with the second differential section of the transmitter filtering module,

wherein the first and second half differential sections of the receiver filtering module are symmetrically placed on the at least one layer around the first and second half differential sections of the transmitter filtering module, wherein the first and second half differential sections of the transmitter filtering module are fabricated on the at least one layer.